

CHAPTER 7 - Photosynthesis: Using Light to Make Food

Chapter Reading Guide

I. WORD STUDY

Please complete the following cloze passage section by determining the meaning of each root and then fill in the missing definition of the term which contains the root.

- a. **auto-** = _____; **-troph** = _____ (*autotroph*: an organism that obtains _____)
- b. **meso-** = _____ (*mesophyll*: _____ inside of a leaf)
- c. **photo-** = _____ (*photosystem*: cluster of _____)

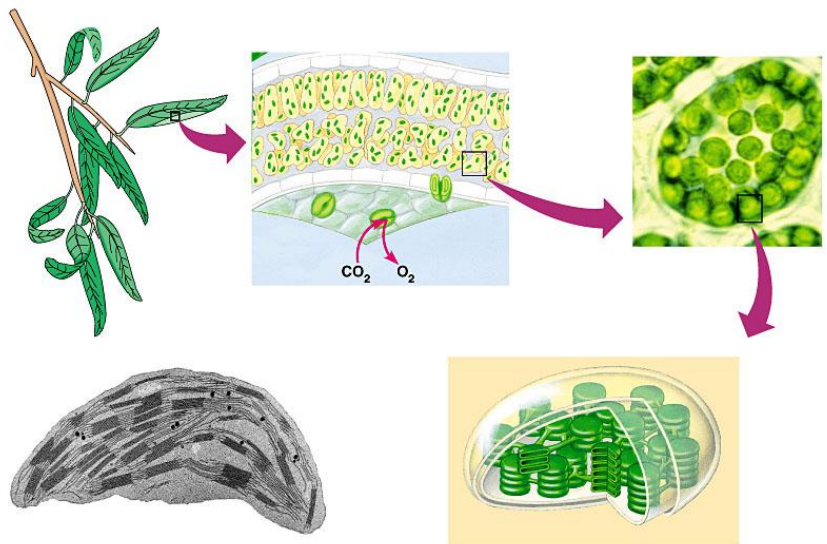
II. KEY TERMS

Define the following key terms on a separate sheet of paper or on individual index cards.

stoma, stroma, thylakoid, granum, light reaction, Calvin cycle, carbon fixation, C₃ plant, photorespiration, C₄ plant, CAM plant, greenhouse effect

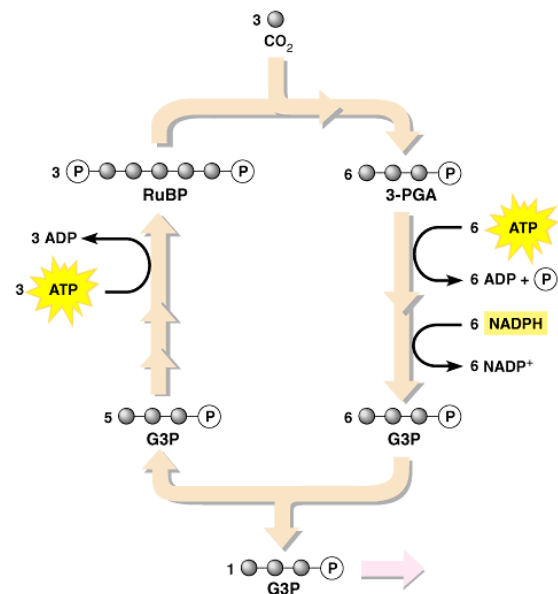
III. READING GUIDE

1. Describe the structure and location of chloroplasts in a leaf. *Begin by completely labeling the diagram below.*



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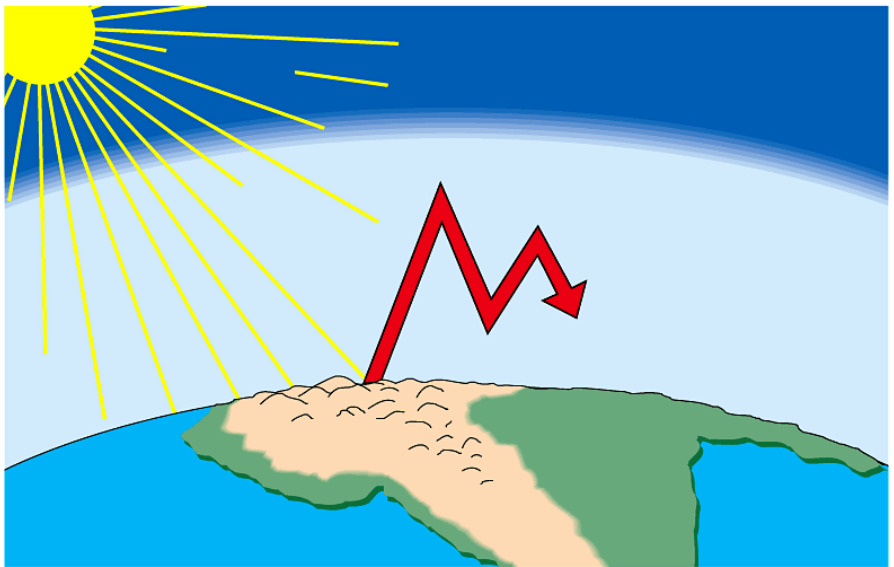
2. Explain how photosynthesis is based upon redox reactions.
3. Compare the reactants and products of the light reactions and the Calvin cycle.
4. Describe the properties and functions of the different photosynthetic pigments.
5. Explain how the electron transport chain and chemiosmosis generate ATP, NADPH, and oxygen in the light reactions.
6. Review the overall process of the light reactions and the Calvin cycle, noting the products, reactants, and locations of each major step.



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7. Compare the mechanisms that C_3 , C_4 , and CAM plants use to obtain carbon dioxide. *Note examples of plants that use these systems.*

8. Describe the greenhouse effect and explain how deforestation and the use of fossil fuels affect this phenomenon. *Begin by labeling the diagram below.*



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9. Explain how the ozone layer forms, how human activities have damaged it, and the consequences of the destruction of the ozone layer.